APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,991	04/26/2001	Gang Luo	NCRC-0038-US (9558)	7901

26890	7590	08/10/2005

JAMES M. STOVER
NCR CORPORATION
1700 SOUTH PATTERSON BLVD, WHQ4
DAYTON, OH 45479

EXAMINER
CHEN, CHONGSHAN

ART UNIT	PAPER NUMBER
2162	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
	09/842,991	LUO ET AL.
Office Action Summary	Examiner	Art Unit	
	Chongshan Chen	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 May 2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-13 and 15-41* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-13 and 15-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This action is responsive to communications filed on May 26, 2005. Claims 1, 3-13 and

15-41 are pending in this Office Action. Claims 2 and 14 are cancelled.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

3.   Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which

is not enabling. Computer readable medium is critical or essential to the practice of the

invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*,

527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The database system and the instructions for

enabling the database system must be embodied in a hardware (e.g. computer readable medium).

Without the hardware, the database system would not perform any operation. Therefore,

examiner suggests the applicant to incorporate computer readable medium into the clam

limitation.

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

5.   Claims 1, 3-13 and 15-41 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

6.   Independent claims 1 and 23 recite, "**redistributing** the first and second tuples to plural

nodes ...". The method/system must perform a distributing step first (e.g. the step of store

first/second tuples in a first table distributed across the plurality of nodes as disclosed in claim

13), then the method/system can perform the **re**distributing step. However, claims 1 and 23

perform the **re**distributing step without perform any prior distributing step. This renders the

claims indefinite. Appropriate corrections are required.

7.   Claim 13 recites the limitation "the partitioning" in line 10. There is insufficient

antecedent basis for this limitation in the claim.

8.   Claim 16 recites the limitation "the hash tables" in line 5. It is unclear whether the hash

tables meant the first hash tables or the second hash tables or both.

9.   Claim 17 recites the limitation "the first hash table" and "the second hash table" in line 3

and 4. There is insufficient antecedent basis for this limitation in the claim. Please note that

claim 16 uses "first hash table**s**" and "second hash table**s**".

10.   Claim 23 recites the limitation "the partitioning" in line 7. There is insufficient

antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

11.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

12.   Claims 1-12, 33, 34, 36 and 37 are rejected under 35 U.S.C. 101 because the claimed

invention is directed to non-statutory subject matter.

MPEP 2106 IV. B.2. (b)

A claim that requires one or more acts to be performed defines a process. However, not all processes are statutory under 35 U.S.C. 101. Schrader, 22 F.3d at 296, 30 USPQ2d at 1460. To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application in the technological arts is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application within the technological arts.

Claims 1-12, 33, 34, 36 and 37, in view of the above cited MPEP section, are not statutory because they merely recite a number of computing steps without producing any tangible result and/or being limited to a practical application within the technological arts. The use of a computer has not been indicated.

13.   Claims 23-32, 35, 40 and 41 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 23-32, 35, 40 and 41 are not limited to tangible embodiments. In view of Applicant's disclosure, specification page 19, lines 1-11, the media are not limited to tangible embodiments, instead being defined as including both tangible embodiments (e.g., hard disk) and intangible embodiments (e.g., wireless links). As such, the claims are not limited to statutory subject matter and is therefore non-statutory.

To overcome this type of 101 rejection the claims need to be amended to include only the physical computer media and not a transmission media or other intangible or non-functional media.

Double Patenting

14.   The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).
        A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).
        Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15.   Claims 1, 3-12, 33, 34, 36 and 37 are rejected under the judicially created doctrine of

obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No.

6,804,678 B1 in view of Urhan et al. (hereinafter "Urhan", "Xjoin: Getting Fast Answers From

Slow and Bursty Networks", Technical Report, CS-TR-3994, UMIACS-TR-99-13, February

1999).

        Although the conflicting claims are not identical, they are not patentably distinct from

each other because of following reasons: Claim 1 of the instant application substantially recites

the limitation of claim 1 of the cited U.S. patent. The claim merely omits certain the underlined

limitations and replaces the bolded limitations as shown in comparison table 1 below.

Application Claim 1	U.S. Patent 6,804,678 B1 Claim 1

1. A method comprising:
 	
   storing first tuples in a first table in a database system;
	1. A method comprising:
	
	   storing first tuples in a first table in a database system;

storing second tuples in a second table in the database system;	storing second tuples in a second table in the database system;
partitioning the first and second tuples into plural portions;	partitioning the first and second tuples into plural portions <u>distributed among plural nodes of the database system based on split vectors containing redefined ranges</u>; and
redistributing the first and second tuples to plural nodes according to the partitioning; and	joining the first and second tuples based on the partitioned portions.
hash joining the first and second tuples to produce result tuples as the first and second tuples are being redistributed to the plural nodes.	

<div align="right">**Table 1**</div>

It would have been obvious to one of ordinary skill in the art of data processing at the time the invention was made to modify the cited steps as indicated claim 1 of the US Patent since the omission and addition of the cited limitations would have not changed the process according to which the method of joining the first and second tuples. Furthermore, Urhan teaches hash joining the first and second tuples to produce result tuples as the first and second tuples are being redistributed to the plural nodes (Urhan, page 2-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the '678 reference by replacing the join operation with the hash join operation as disclosed by Urhan because the hash join is an effective solution for providing fast query responses to users (Urhan, Abstract).

The dependent claims 3-12, 33, 34, 36 and 37 of the instant application are rejected for fully incorporating the errors of their respective base claims by dependency.

16.   Claims 13, 15-22, 38 and 39 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No.

6,804,678 B1 in view of Urhan et al. (hereinafter "Urhan", "Xjoin: Getting Fast Answers From

Slow and Bursty Networks", Technical Report, CS-TR-3994, UMIACS-TR-99-13, February

1999).

Although the conflicting claims are not identical, they are not patentably distinct from

each other because of following reasons: Claim 1 of the instant application substantially recites

the limitation of claim 1 of the cited U.S. patent. The claim merely omits certain the underlined

limitations and replaces the bolded limitations as shown in comparison table 2 below.

Application Claim 13	U.S. Patent 6,804,678 B1 Claim 1

13. A database system comprising:
    a plurality of nodes; and
    instructions for enabling the database system to:
        store first tuples in a first table distributed across the plurality of nodes;
        store second tuples in a second table distributed across the plurality of nodes;
        partition the first and second tuples into plural portions;
        redistributing the first and second tuples to the plurality of nodes according to the partitioning; and
        hash join the first and second tuples to produce result tuples as the first and second tuples are being redistributed to the plurality of nodes.
	1. A method comprising:
	
	    storing first tuples in a first table in a database system;
	
	    storing second tuples in a second table in the database system;
	
	    partitioning the first and second tuples into plural portions <u>distributed among plural nodes of the database system based on split vectors containing redefined ranges</u>; and
	
	    joining the first and second tuples based on the partitioned portions.

Table 2

It would have been obvious to one of ordinary skill in the art of data processing at the

time the invention was made to modify the cited steps as indicated claim 1 of the US Patent since

the omission and addition of the cited limitations would have not changed the process according

to which the method of joining the first and second tuples. Furthermore, Urhan teaches hash

joining the first and second tuples to produce result tuples as the first and second tuples are being

redistributed to the plural nodes (Urhan, page 2-6). Therefore, it would have been obvious to

one of ordinary skill in the art at the time the invention was made to modify the '678 reference

by replacing the join operation with the hash join operation as disclosed by Urhan because the

hash join is an effective solution for providing fast query responses to users (Urhan, Abstract).

The dependent claims 15-22, 38 and 39 of the instant application are rejected for fully

incorporating the errors of their respective base claims by dependency.

17.   Claims 23-32, 35, 40 and 41 are rejected under the judicially created doctrine of

obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No.

6,804,678 B1 in view of Urhan et al. (hereinafter "Urhan", "Xjoin: Getting Fast Answers From

Slow and Bursty Networks", Technical Report, CS-TR-3994, UMIACS-TR-99-13, February

1999).

Although the conflicting claims are not identical, they are not patentably distinct from

each other because of following reasons: Claim 1 of the instant application substantially recites

the limitation of claim 1 of the cited U.S. patent. The claim merely omits certain the underlined

limitations and replaces the bolded limitations as shown in comparison table 3 below.

Application Claim 23	U.S. Patent 6,804,678 B1 Claim 1

23. An article comprising a medium storing instructions for enabling a processor-based system to:
    store first tuples in a first table in a database
	1. A method comprising:
	
	    storing first tuples in a first table in a database system;

| system;
    store second tuples in a second table in the database system;
    partition the first and second tuples into plural portions;
    redistribute the first and second tuples to plural nodes of the database system according to the partitioning; and
    hash join the first and second tuples to produce result tuples as the first and second tuples are being redistributed to the plural nodes. | storing second tuples in a second table in the database system;

    partitioning the first and second tuples into plural portions <u>distributed among plural nodes of the database system based on split vectors containing redefined ranges</u>; and

    joining the first and second tuples based on the partitioned portions. |

Table 3

It would have been obvious to one of ordinary skill in the art of data processing at the time the invention was made to modify the cited steps as indicated claim 1 of the US Patent since the omission and addition of the cited limitations would have not changed the process according to which the method of joining the first and second tuples. Furthermore, Urhan teaches hash joining the first and second tuples to produce result tuples as the first and second tuples are being redistributed to the plural nodes (Urhan, page 2-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the '678 reference by replacing the join operation with the hash join operation as disclosed by Urhan because the hash join is an effective solution for providing fast query responses to users (Urhan, Abstract).

The dependent claims 24-32, 35, 40 and 41 of the instant application are rejected for fully incorporating the errors of their respective base claims by dependency.

Contact Information

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Chongshan Chen whose telephone number is (571) 272-4031.

The examiner can normally be reached on Monday - Friday (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chongshan Chen
August 3, 2005

JEAN M. CORRIELUS
PRIMARY EXAMINER